

### ABSTRACT

A switching element has an ion conductor capable of conducting metal ions for use in an electrochemical reaction therein, a first electrode and a second electrode which are disposed in contact with said ion conductor and spaced a predetermined distance from each other, and a third electrode disposed in contact with the ion conductor. When a voltage for causing the switching element to transit to an on state is applied to the third electrode, metal is precipitated between the first electrode and the second electrode by metal ions, electrically interconnecting the first electrode and the second electrode. When a voltage for causing the switching element to transit to an off state is applied to the third electrode, the precipitated metal is dissolved to electrically disconnect the first electrode and the second electrode from each other.